

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In re Application of:**

**Schwonke et al.**

**Serial No.:**

**Filing Date: July 26, 2001**

**Docket No. D078 1130.1**

**For: Linoleum-Based Planar Structure, A Process For The Preparation of Such A Planar Structure As Well As The Use Of The Planar Structure**

**PRELIMINARY AMENDMENT**

Honorable Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Please amend the subject application as follows prior to initial examination thereof.

**In the Title**

Please delete the title and insert in place thereof,

Linoleum-Based Planar Structure and Process For Making Same

**In the Abstract**

Please delete the present abstract and insert the following:

A linoleum-based planar structure, a process for the preparation of such a planar structure as well as the use of the planar structure, for example, as a floor covering is provided. The linoleum-based planar structure contains flakes, including organic polymeric material, over the whole cross section of the linoleum sheet. The flakes are compatible with the linoleum base

composition and have a particle size in the range of 0.5 mm to 30 mm and a thickness in the range of 1.0  $\mu\text{m}$  to 400  $\mu\text{m}$ . Such a planar structure displays a smooth plain surface without the need of any grinding step. Moreover, the incorporation of such flakes enables a broad variety of designing and patterning, particularly the development of a distinctively, coarsely patterned “spotting structure.”

### **In the Specification**

On page 1, before Description, please insert the following:

#### **REFERENCE TO RELATED APPLICATION**

This application claims the benefit, pursuant to 35 U.S.C. §119, of the filing date of European Application No. 00 116 317.9-2113, filed July 27, 2000.

On page 1, starting at line 1, please amend as follows:

The present invention relates to a linoleum-based planar structure a process for the preparation of such a planar structure as well as the use of the planar structure, for example, as a floor covering. The linoleum-based planar structure according to the present invention is particularly characterized by containing over the whole cross section flakes comprising an organic polymeric material, the flakes being compatible with the linoleum base composition and having a particle size in the range of 0.5 to 30 mm and a thickness in the range of 1.0 to 400  $\mu\text{m}$ . Such a planar structure according to the present invention displays a smooth plain surface without the need of any grinding step. Moreover, the incorporation of such flakes enables a broad variety of designing and patterning, particularly the development of a distinctively, coarsely patterned “spotting structure”.

Planar structures like floor coverings based on linoleum comprise a Bedford cement (abbreviated to "B cement") made from a partially oxidized linseed oil, at least one resin as tackifier and at least one filler, such as softwood flour and/or ground cork (if wood flour and ground cork are both present, the weight ratio is typically 90:10) and/or chalk, kaolin (China clay) and barites, and at least one pigment, such as titanium dioxide and other conventional colorants based on inorganic and organic dyes. A typical linoleum base composition consists of, based on the weight of the wear layer, about 40% by weight of binder, about 30% by weight of organic fillers, about 20% by weight of inorganic (mineral) fillers and about 10% by weight of colorants.

On page 3, starting at line 21, please amend as follows:

Therefore, it is an object of the present invention to provide a linoleum based planar structure that has a more distinctively and more coarsely patterned "spotting structure" and displays a smooth plain surface without the need of any grinding step. Moreover, it is an object of the present invention to provide a process for the preparation of such a planar structure which enables a broad variety of designing and patterning and can be easily carried out in an economically advantageous manner.

On page 4, starting at line 14, please amend as follows:

Moreover, such a planar structure according to the present invention displays a smooth plain surface without the need of any grinding step. Further, the incorporation of such flakes enables a broad variety of designing and patterning, particularly the development of a more

distinctively and more coarsely patterned “spotting structure”, when compared to the structure of DE 44 07 989.

On page 7, starting at line 8, please amend as follows:

With the process according to the present invention, a linoleum-based planar structure that displays a smooth plain surface and has a unique “spotting structure”, can be produced in the way described above without the need of any grinding step due to the specifically flat shaped flakes used. Consequently, planar structures like floor coverings having a unique “spotting structure”, i.e. a more distinctively and more coarsely patterned “spotting structure” when compared to the structure of DE 44 07989, which have so far not been attainable, can be produced in a simple manner.

### **In the Claims**

On page 11, line 1, please insert:

What is claimed is:

Please cancel claims 1-18 without prejudice or disclaimer.

Please add the following new claims:

19. (New) A linoleum-based planar structure comprising:

a planar structure formed of a linoleum base composition, the planar structure containing over the whole cross section thereof flakes comprising an organic polymeric material, the flakes being compatible with the linoleum base composition and having a particle size in the range of 0.5 mm to 30 mm and a thickness in the range of 1.0  $\mu\text{m}$  to 400  $\mu\text{m}$ .

20. (New) The linoleum-based planar structure according to claim 19 wherein the thickness of the flakes is within the range of 1.5  $\mu\text{m}$  to 50  $\mu\text{m}$ .
21. (New) The linoleum-based planar structure according to claim 19, wherein the organic polymeric material is selected from the group consisting of a material containing the reaction product of at least one dicarboxylic acid or one polycarboxylic acid or derivatives thereof or a mixture thereof with at least one epoxidation product of a carboxylic acid ester or a mixture of said epoxidation products, poly(meth)acrylates, polyvinylacetates, and a mixture thereof.
22. (New) The linoleum-based planar structure according to claim 21, wherein the dicarboxylic acid is maleic acid, itaconic acid, fumaric acid, succinic acid, methylsuccinic acid, malic acid, furandicarboxylic acid, phthalic acid, tartaric acid, or citraconic acid, or a mixture thereof containing at least two of these acids.
23. (New) The linoleum-based planar structure according to claim 21, wherein the polycarboxylic acid is selected from citric acid, aconitic acid or trimellitic acid.
24. (New) The linoleum-based planar structure according to claim 21, wherein the derivative of the di- or polycarboxylic acid is an anhydride or a partial ester.
25. (New) The linoleum-based planar structure according to claim 21, wherein the alcohol component of the partial ester is a polyol.

26. (New) The linoleum-based planar structure according to claim 21, wherein the mixture of at least one di- or polycarboxylic acid or derivatives thereof is a mixture of a partial ester of maleic acid anhydride and dipropylene glycol with citric acid.
27. (New) The linoleum-based planar structure according to claim 21, wherein the epoxidation product of a carboxylic acid ester is epoxidized linseed oil, epoxidized soybean oil, epoxidized castor oil, epoxidized rape-seed oil or vernonia oil, or a mixture thereof containing at least two of these epoxidized products.
28. (New) The linoleum-based planar structure according to claim 19, wherein the flakes are present in an amount ranging from 1 to 15 wt-%, based on the total amount of linoleum base composition.
29. (New) The linoleum-based planar structure according to claim 19, wherein the planar structure has a thickness in the range of 0.8 mm to 4.0 mm.
30. (New) The linoleum-based planar structure according to claim 19, wherein the flakes are single-colored or multi-colored.
31. (New) The linoleum-based planar structure according to claim 30, wherein the flakes are provided with an optical brightening agent, a fluorescent agent or a phosphorescent agent or a mixture thereof.

32. (New) A process for producing a linoleum-based planar structure according to claim 19, comprising the steps of:

(a) preparing a linoleum base composition,

(b) adding flakes comprising an organic polymeric material, the flakes being compatible with the linoleum base composition and having a particle size in the range of 0.5 mm to 30 mm and a thickness in the range of 1.0  $\mu\text{m}$  to 400  $\mu\text{m}$  to the linoleum base composition, and

(c) rolling out the linoleum composition obtained in step (b) by means of a roller assembly into a linoleum sheet.

33. (New) The process according to claim 32, wherein the step (c) concurrently includes the steps of providing a carrier in web form and coating one side of the carrier with at least one upper layer of the linoleum composition obtained in step (b).

34. (New) The process according to step 33, further comprising the steps of:

(d) cutting the linoleum sheet obtained in step (c) into chips by means of rotating cutters,

(e) rolling out the thus obtained chips by means of a roller assembly into a linoleum sheet, and

(f) optionally applying the linoleum sheet obtained in step (e) as a wear layer onto a single layer linoleum web to obtain a multi-layered linoleum floor covering.

35. (New) The process according to claim 34, wherein before step (e) chips of different color are added to the chips obtained in step (d).
36. (New) The process of claim 54, further including the step of:  
combining the chips with differently colored chips.
37. (New) A planar structure comprising:  
a linoleum sheet containing flakes distributed throughout a substantial portion of a cross-section of the linoleum sheet, wherein the flakes include an organic polymeric material and wherein each of the flakes has a particle size greater than a thickness thereof by a factor of at least 2.5.
38. (New) The planar structure of claim 36, wherein each of the flakes has a particle size between about 0.5 mm and about 30 mm and a thickness between about 1.0 and about 400  $\mu\text{m}$ .
39. (New) The planar structure of claim 36, wherein each of the flakes has a particle size between about 0.5 mm and about 10 mm and a thickness between about 10  $\mu\text{m}$  and about 100  $\mu\text{m}$ .
40. (New) The planar structure of claim 36, wherein each of the flakes has a particle size between about 1.5 mm and about 10 mm and a thickness between about 1.5  $\mu\text{m}$  and about 50  $\mu\text{m}$ .



41. (New) The planar structure of claim 36, wherein each of the flakes has a thickness between about 1.5  $\mu\text{m}$  and about 50  $\mu\text{m}$ .
42. (New) The planar structure of claim 36, wherein the organic polymeric material includes at least one polymer selected from a poly (meth)acrylate, a polyvinylacetate, a product of a reaction between a carboxylic acid and an epoxidation product of a carboxylic acid ester, and a mixture thereof.
43. (New) The planar structure of claim 41, wherein the carboxylic acid is a dicarboxylic acid.
44. (New) The planar structure of claim 42, wherein the dicarboxylic acid is selected from maleic acid, itaconic acid, fumaric acid, succinic acid, methylsuccinic acid, malic acid, furandicarboxylic acid, phthalic acid, tartaric acid, citraconic acid and mixtures thereof.
45. (New) The planar structure of claim 41, wherein the carboxylic acid is a polycarboxylic acid.
46. (New) The planar structure of claim 44, wherein the polycarboxylic acid is selected from citric acid, aconitic acid, trimellitic acid and mixtures thereof.
47. (New) The planar structure of claim 41, wherein the carboxylic acid is a carboxylic acid derivative selected from an anhydride, a partial ester and mixture thereof.

48. (New) The planar structure of claim 46, wherein an alcohol component of the partial ester is a polyol.
49. (New) The planar structure of claim 47, wherein the polyol is selected from dipropylene glycols, propanediols, butanediols, hexanetriols, pentaerythritols, glycerins and mixtures thereof.
50. (New) The planar structure of claim 48, wherein the organic polymeric material includes a mixture of citric acid with a partial ester of maleic anhydride and dipropylene glycol.
51. (New) The planar structure of claim 49, wherein the mixture includes up to about 50% by weight citric acid.
52. (New) The planar structure of claim 49, wherein the mixture includes up to about 25% by weight citric acid.
53. (New) The planar structure of claim 41, wherein the epoxidation product of a carboxylic acid ester is selected from epoxidized linseed oil, epoxidized soybean oil, epoxidized castor oil, epoxidized rape-seed oil, epoxidized veronia oil and a mixture thereof.
54. (New) The planar structure of claim 36, wherein the linoleum sheet includes from about 1% to about 15% by weight of the flakes.

55. (New) The planar structure of claim 36, wherein the linoleum sheet has a thickness of about 0.8 mm to about 4.0 mm.
56. (New) The planar structure of claim 36, wherein the flakes are single-colored.
57. (New) The planar structure of claim 36, wherein the flakes are multi-colored.
58. (New) The planar structure of claim 36, wherein the flakes include at least one agent selected from an optical brightening agent, a fluorescent agent, a phosphorescent agent and a mixture thereof.
59. (New) A process of producing a planar structure comprising:  
preparing a linoleum base composition;  
combining flakes with the linoleum base composition to form a flake-linoleum composition, wherein the flakes include an organic polymeric material, and wherein each of the flakes has a particle size greater than the thickness thereof by at least a factor of 2.5;  
forming a linoleum sheet from the flake-linoleum composition.
60. (New) The process of claim 58, wherein each of the flakes has a particle size between about 0.5 mm and about 30 mm and a thickness between about 1.0  $\mu\text{m}$  and about 400  $\mu\text{m}$ .

61. (New) The process of claim 58, wherein each of the flakes has a particle size between about 0.5 mm and about 10 mm and a thickness between about 10  $\mu\text{m}$  and about 100  $\mu\text{m}$ .
62. (New) The process of claim 58, wherein each of the flakes has a particle size between about 1.5 mm and about 10 mm and a thickness between about 1.5  $\mu\text{m}$  and about 50  $\mu\text{m}$ .
63. (New) The process of claim 58, wherein each of the flakes has a thickness between about 1.5  $\mu\text{m}$  and about 50  $\mu\text{m}$ .
64. (New) The process of claim 58, wherein the organic polymeric material includes at least one polymer selected from a poly (meth)acrylate, a polyvinylacetate, a product of a reaction between a carboxylic acid and an epoxidation product of a carboxylic acid ester, and a mixture thereof.
65. (New) The process of claim 63, wherein the carboxylic acid is a dicarboxylic acid.
66. (New) The process of claim 64, wherein the dicarboxylic acid is selected from maleic acid, itaconic acid, fumaric acid, succinic acid, methylsuccinic acid, malic acid, furandicarboxylic acid, phthalic acid, tartaric acid, citraconic acid and mixtures thereof.
67. (New) The process of claim 63, wherein the carboxylic acid is a polycarboxylic acid.

68. (New) The process of claim 66, wherein the polycarboxylic acid is selected from citric acid, aconitic acid, trimellitic acid and mixtures thereof.
69. (New) The process of claim 58, wherein the flakes are uniformly distributed throughout the linoleum sheet.
70. (New) The process of claim 58, wherein the linoleum sheet is formed with a carrier in web form coated with a layer of the flake-linoleum composition.
71. (New) The process of claim 58, wherein the linoleum sheet is formed by means of a roller assembly.
72. (New) The process of claim 58, further including the steps of:  
cutting the linoleum sheet into chips; and,  
forming a second linoleum sheet from the chips;
73. (New) The process of claim 71, further including the step of:  
applying the second linoleum sheet onto a single layer linoleum web to form a multi-layered linoleum floor covering.

#### **REMARKS**

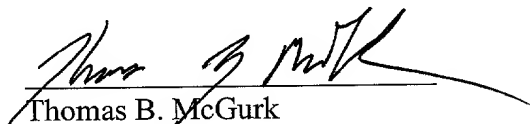
Consideration of the present application is respectfully requested. The present application claims priority to European Application No. 00 116 317.9-2113, filed July 27, 2000.

The application has now been amended to insert a claim to priority, as required by 35 U.S.C. §119(b).

The specification has now been amended to place it in more acceptable form.

Claims 1-18, as originally filed in the European application, have been cancelled without prejudice or disclaimer. Applicant has not cancelled claims 1-18 in view of the prior art. Rather, claims 1-18 have been cancelled and new claims 19-73 have been added in order to better conform with U.S. patent practice. Applicant believes that the newly added claims are in condition for allowance. Applicant respectfully requests that the new claims be substituted in the application prior to initial examination thereof.

Respectfully submitted,

  
Thomas B. McGurk  
Registration No.: 44,920

WOMBLE CARLYLE SANDRIDGE & RICE  
P.O. Box 7037  
Atlanta, Georgia 30357-0037  
(404) 872-7000  
(404) 888-7340 (fax)

CERTIFICATE OF MAILING

I hereby certify that this document is being deposited as Express Mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231 on July 27, 2001, Express Mail Label No. EL759080039 US

Raren Ford  
Signature

## **Appendix A**

### **In the Title**

Please delete the title and insert in place thereof,

[Linoleum-based planar structure, a process for the preparation of such a planar structure as well as the use of the planar structure]

Linoleum-Based Planar Structure and Process For Making Same

### **In the Abstract**

Please delete the present abstract and insert the following:

[The present invention relates to a linoleum-based planar structure a process for the preparation of such a planar structure as well as the use of the planar structure, for example, as a floor covering. The linoleum-based planar structure according to the present invention is particularly characterized by containing over the whole cross section flakes comprising an organic polymeric material, the flakes being compatible with the linoleum base composition and having a particle size in the range of 0.5 to 30 mm and a thickness in the range of 1.0 to 400  $\mu\text{m}$ . Such a planar structure according to the present invention displays a smooth plain surface without the need of any grinding step. Moreover, the incorporation of such flakes enables a broad variety of designing and patterning, particularly the development of a distinctively, coarsely patterned "spotting structure".]

A linoleum-based planar structure, a process for the preparation of such a planar structure as well as the use of the planar structure, for example, as a floor covering is provided. The linoleum-based planar structure contains flakes, including organic polymeric material, over the

whole cross section of the linoleum sheet. The flakes are compatible with the linoleum base composition and have a particle size in the range of 0.5 mm to 30 mm and a thickness in the range of 1.0  $\mu$ m to 400  $\mu$ m. Such a planar structure displays a smooth plain surface without the need of any grinding step. Moreover, the incorporation of such flakes enables a broad variety of designing and patterning, particularly the development of a distinctively, coarsely patterned “spotting structure.”

#### **In the Specification**

On page 1, before Description, please insert the following:

#### **REFERENCE TO RELATED APPLICATION**

This application claims the benefit, pursuant to 35 U.S.C. §119, of the filing date of European Application No. 00 116 317.9-2113, filed July 27, 2000.

On page 1, starting at line 1, please amend as follows:

The present invention relates to a linoleum-based planar structure a process for the preparation of such a planar structure as well as the use of the planar structure, for example, as a floor covering. The linoleum-based planar structure according to the present invention is particularly characterized by containing over the whole cross section flakes comprising an organic polymeric material, the flakes being compatible with the linoleum base composition and having a particle size in the range of 0.5 to 30 mm and a thickness in the range of 1.0 to 400  $\mu$ m. Such a planar structure according to the present invention displays a smooth plain surface without the need of any grinding step. Moreover, the incorporation of such flakes enables a



broad variety of designing and patterning, particularly the development of a distinctively, coarsely patterned [.] “spotting structure”.

Planar structures like floor coverings based on linoleum comprise a Bedford cement (abbreviated to [.] “B cement”) made from a partially oxidized linseed oil, at least one resin as tackifier and at least one filler, such as softwood flour and/or ground cork (if wood flour and ground cork are both present, the weight ratio is typically 90:10) and/or chalk, kaolin (China clay) and barites, and at least one pigment, such as titanium dioxide and other conventional colorants based on inorganic and organic dyes. A typical linoleum base composition consists of, based on the weight of the wear layer, about 40% by weight of binder, about 30% by weight of organic fillers, about 20% by weight of inorganic (mineral) fillers and about 10% by weight of colorants.

On page 3, starting at line 21, please amend as follows:

Therefore, it is an object of the present invention to provide a linoleum based planar structure that has a more distinctively and more coarsely patterned [.] “spotting structure” and displays a smooth plain surface without the need of any grinding step. Moreover, it is an object of the present invention to provide a process for the preparation of such a planar structure which enables a broad variety of designing and patterning and can be easily carried out in an economically advantageous manner.

On page 4, starting at line 14, please amend as follows:

Moreover, such a planar structure according to the present invention displays a smooth plain surface without the need of any grinding step. Further, the incorporation of such flakes enables a broad variety of designing and patterning, particularly the development of a more distinctively and more coarsely patterned [...] “spotting structure”, when compared to the structure of DE 44 07 989.

On page 7, starting at line 8, please amend as follows:

With the process according to the present invention, a linoleum-based planar structure that displays a smooth plain surface and has a unique [...] “spotting structure”, can be produced in the way described above without the need of any grinding step due to the specifically flat shaped flakes used. Consequently, planar structures like floor coverings having a unique [...] “spotting structure”, i.e. a more distinctively and more coarsely patterned [...] “spotting structure” when compared to the structure of DE 44 07989, which have so far not been attainable, can be produced in a simple manner.

#### **In the Claims**

On page 11, line 1, please insert:

#### **What is claimed is:**

Please cancel claims 1-18 without prejudice or disclaimer.

[1. A linoleum-based planar structure characterized in that it contains over the whole cross section flakes comprising an organic polymeric material, the flakes being compatible with the linoleum base composition and having a particle size in the range of 0.5 to 30 mm and a thickness in the range of 1.0 to 400  $\mu\text{m}$ .]

[2. The linoleum-based planar structure according to claim 1 wherein the thickness of the flakes is within the range of 1.5 to 50  $\mu\text{m}$ .]

[3. The linoleum-based planar structure according to claim 1 or 2, wherein the organic polymeric material is selected from the group consisting of a material containing the reaction product of at least one dicarboxylic acid or one polycarboxylic acid or derivatives thereof or a mixture thereof with at least one epoxidation product of a carboxylic acid ester or a mixture of said epoxidation products, poly(meth)acrylates, polyvinylacetates, and a mixture thereof.]

[4. The linoleum-based planar structure according to claim 3, wherein the dicarboxylic acid is maleic acid, itaconic acid, fumaric acid, succinic acid, methylsuccinic acid, malic acid, furandicarboxylic acid, phthalic acid, tartaric acid, or citraconic acid, or a mixture thereof containing at least two of these acids.]

[5. The linoleum-based planar structure according to claim 3, wherein the polycarboxylic acid is selected from citric acid, aconitic acid or trimellitic acid.]

[6. The linoleum-based planar structure according to anyone of claims 4 to 6, wherein the derivative of the di- or polycarboxylic acid is an anhydride or a partial ester.]

[7. The linoleum-based planar structure according to claim 6, wherein the alcohol component of the partial ester is a polyol.]

[8. The linoleum-based planar structure according to anyone of claims 3 to 7, wherein the mixture of at least one di- or polycarboxylic acid or derivatives thereof is a mixture of a partial ester of maleic acid anhydride and dipropylene glycol with citric acid.]

[9. The linoleum-based planar structure according to anyone of claims 3 to 8, wherein the epoxidation product of a carboxylic acid ester is epoxidized linseed oil, epoxidized soybean oil, epoxidized castor oil, epoxidized rape-seed oil, or vernonia oil, or a mixture thereof containing at least two of these epoxidized products.]

[10. The linoleum-based planar structure according to anyone of claims 1 to 9, wherein the flakes are present in an amount ranging from 1 to 15 wt-%, based on the total amount of linoleum base composition.]

[11. The linoleum-based planar structure according to anyone of claims 1 to 10, wherein the planar structure has a thickness in the range of 0.8 to 4.0 mm.]

[12. The linoleum-based planar structure according to anyone of claims 1 to 11, wherein the flakes are single-coloured or multi-coloured.]

[13. The linoleum-based planar structure according to claim 12, wherein the flakes are provided with an optical brightening agent, a fluorescent agent or a phosphorescent agent or a mixture thereof.]

[14. A process for producing a linoleum-based planar structure according to one or more of the preceding claims 1 to 13, comprising the steps of:

- (a) preparing a linoleum base composition,
- (b) adding flakes comprising an organic polymeric material, the flakes being compatible with the linoleum base composition and having a particle size in the range of 0.5 to 30 mm and a thickness in the range of 10 to 400  $\mu\text{m}$  to the linoleum base composition, and
- (c) rolling out the linoleum composition obtained in step (b) by means of a roller assembly into a linoleum sheet.]

[15. The process according to claim 14, wherein the step (c) concurrently includes the steps of providing a carrier in web form and coating one side of the carrier with at least one upper layer of the linoleum composition obtained in step (b).]

[16. The process according to step 14, further comprising the steps of:

- (d) cutting the linoleum sheet obtained in step (c) into chips by means of rotating cutters,
- (e) rolling out the thus obtained chips by means of a roller assembly into a linoleum sheet, and
- (f) optionally applying the linoleum sheet obtained in step (e) as a wear layer onto a single layer linoleum web to obtain a multi-layered linoleum floor covering.]

[17. The process according to claim 16, wherein before step (e) chips of different color are added to the chips obtained in step (d).]

[18. The use of the planar structure according to anyone of claims 1 to 13 as a floor covering.]

Please add the following new claims 19-73:

19. (New) A linoleum-based planar structure comprising:

a planar structure formed of a linoleum base composition, the planar structure containing over the whole cross section thereof flakes comprising an organic polymeric material, the flakes being compatible with the linoleum base composition and having a particle size in the range of 0.5 mm to 30 mm and a thickness in the range of 1.0  $\mu\text{m}$  to 400  $\mu\text{m}$ .

20. (New) The linoleum-based planar structure according to claim 19 wherein the thickness of the flakes is within the range of 1.5  $\mu\text{m}$  to 50  $\mu\text{m}$ .

21. (New) The linoleum-based planar structure according to claim 19, wherein the organic polymeric material is selected from the group consisting of a material containing the reaction product of at least one dicarboxylic acid or one polycarboxylic acid or derivatives thereof or a mixture thereof with at least one epoxidation product of a carboxylic acid ester or a mixture of said epoxidation products, poly(meth)acrylates, polyvinylacetates, and a mixture thereof.

22. (New) The linoleum-based planar structure according to claim 21, wherein the dicarboxylic acid is maleic acid, itaconic acid, fumaric acid, succinic acid, methylsuccinic

acid, malic acid, furandicarboxylic acid, phthalic acid, tartaric acid, or citraconic acid, or a mixture thereof containing at least two of these acids.

23. (New) The linoleum-based planar structure according to claim 21, wherein the polycarboxylic acid is selected from citric acid, aconitic acid or trimellitic acid.
24. (New) The linoleum-based planar structure according to claim 21, wherein the derivative of the di- or polycarboxylic acid is an anhydride or a partial ester.
25. (New) The linoleum-based planar structure according to claim 21, wherein the alcohol component of the partial ester is a polyol.
26. (New) The linoleum-based planar structure according to claim 21, wherein the mixture of at least one di- or polycarboxylic acid or derivatives thereof is a mixture of a partial ester of maleic acid anhydride and dipropylene glycol with citric acid.
27. (New) The linoleum-based planar structure according to claim 21, wherein the epoxidation product of a carboxylic acid ester is epoxidized linseed oil, epoxidized soybean oil, epoxidized castor oil, epoxidized rape-seed oil or vernonia oil, or a mixture thereof containing at least two of these epoxidized products.

28. (New) The linoleum-based planar structure according to claim 19, wherein the flakes are present in an amount ranging from 1 to 15 wt-%, based on the total amount of linoleum base composition.
29. (New) The linoleum-based planar structure according to claim 19, wherein the planar structure has a thickness in the range of 0.8 mm to 4.0 mm.
30. (New) The linoleum-based planar structure according to claim 19, wherein the flakes are single-colored or multi-colored.
31. (New) The linoleum-based planar structure according to claim 30, wherein the flakes are provided with an optical brightening agent, a fluorescent agent or a phosphorescent agent or a mixture thereof.
32. (New) A process for producing a linoleum-based planar structure according to claim 19, comprising the steps of:
- (a) preparing a linoleum base composition,
  - (b) adding flakes comprising an organic polymeric material, the flakes being compatible with the linoleum base composition and having a particle size in the range of 0.5 mm to 30 mm and a thickness in the range of 1.0  $\mu$ m to 400  $\mu$ m to the linoleum base composition,  
and
  - (c) rolling out the linoleum composition obtained in step (b) by means of a roller assembly into a linoleum sheet.



33. (New) The process according to claim 32, wherein the step (c) concurrently includes the steps of providing a carrier in web form and coating one side of the carrier with at least one upper layer of the linoleum composition obtained in step (b).

34. (New) The process according to step 33, further comprising the steps of:

(d) cutting the linoleum sheet obtained in step (c) into chips by means of rotating cutters,

(e) rolling out the thus obtained chips by means of a roller assembly into a linoleum sheet, and

(f) optionally applying the linoleum sheet obtained in step (e) as a wear layer onto a single layer linoleum web to obtain a multi-layered linoleum floor covering.

35. (New) The process according to claim 34, wherein before step (e) chips of different color are added to the chips obtained in step (d).

36. (New) The process of claim 54, further including the step of:  
combining the chips with differently colored chips.

37. (New) A planar structure comprising:  
a linoleum sheet containing flakes distributed throughout a substantial portion of a cross-section of the linoleum sheet, wherein the flakes include an organic polymeric material and

wherein each of the flakes has a particle size greater than a thickness thereof by a factor of at least 2.5.

38. (New) The planar structure of claim 36, wherein each of the flakes has a particle size between about 0.5 mm and about 30 mm and a thickness between about 1.0 and about 400  $\mu\text{m}$ .

39. (New) The planar structure of claim 36, wherein each of the flakes has a particle size between about 0.5 mm and about 10 mm and a thickness between about 10  $\mu\text{m}$  and about 100  $\mu\text{m}$ .

40. (New) The planar structure of claim 36, wherein each of the flakes has a particle size between about 1.5 mm and about 10 mm and a thickness between about 1.5  $\mu\text{m}$  and about 50  $\mu\text{m}$ .

41. (New) The planar structure of claim 36, wherein each of the flakes has a thickness between about 1.5  $\mu\text{m}$  and about 50  $\mu\text{m}$ .

42. (New) The planar structure of claim 36, wherein the organic polymeric material includes at least one polymer selected from a poly (meth)acrylate, a polyvinylacetate, a product of a reaction between a carboxylic acid and an epoxidation product of a carboxylic acid ester, and a mixture thereof.

43. (New) The planar structure of claim 41, wherein the carboxylic acid is a dicarboxylic acid.
44. (New) The planar structure of claim 42, wherein the dicarboxylic acid is selected from maleic acid, itaconic acid, fumaric acid, succinic acid, methylsuccinic acid, malic acid, furandicarboxylic acid, phthalic acid, tartaric acid, citraconic acid and mixtures thereof.
45. (New) The planar structure of claim 41, wherein the carboxylic acid is a polycarboxylic acid.
46. (New) The planar structure of claim 44, wherein the polycarboxylic acid is selected from citric acid, aconitic acid, trimellitic acid and mixtures thereof.
47. (New) The planar structure of claim 41, wherein the carboxylic acid is a carboxylic acid derivative selected from an anhydride, a partial ester and mixture thereof.
48. (New) The planar structure of claim 46, wherein an alcohol component of the partial ester is a polyol.
49. (New) The planar structure of claim 47, wherein the polyol is selected from dipropylene glycols, propanediols, butanediols, hexanetriols, pentaerythritols, glycerins and mixtures thereof.

50. (New) The planar structure of claim 48, wherein the organic polymeric material includes a mixture of citric acid with a partial ester of maleic anhydride and dipropylene glycol.
51. (New) The planar structure of claim 49, wherein the mixture includes up to about 50% by weight citric acid.
52. (New) The planar structure of claim 49, wherein the mixture includes up to about 25% by weight citric acid.
53. (New) The planar structure of claim 41, wherein the epoxidation product of a carboxylic acid ester is selected from epoxidized linseed oil, epoxidized soybean oil, epoxidized castor oil, epoxidized rape-seed oil, epoxidized veronia oil and a mixture thereof.
54. (New) The planar structure of claim 36, wherein the linoleum sheet includes from about 1% to about 15% by weight of the flakes.
55. (New) The planar structure of claim 36, wherein the linoleum sheet has a thickness of about 0.8 mm to about 4.0 mm.
56. (New) The planar structure of claim 36, wherein the flakes are single-colored.
57. (New) The planar structure of claim 36, wherein the flakes are multi-colored.

58. (New) The planar structure of claim 36, wherein the flakes include at least one agent selected from an optical brightening agent, a fluorescent agent, a phosphorescent agent and a mixture thereof.
59. (New) A process of producing a planar structure comprising:  
preparing a linoleum base composition;  
combining flakes with the linoleum base composition to form a flake-linoleum composition, wherein the flakes include an organic polymeric material, and wherein each of the flakes has a particle size greater than the thickness thereof by at least a factor of 2.5;  
forming a linoleum sheet from the flake-linoleum composition.
60. (New) The process of claim 58, wherein each of the flakes has a particle size between about 0.5 mm and about 30 mm and a thickness between about 1.0  $\mu\text{m}$  and about 400  $\mu\text{m}$ .
61. (New) The process of claim 58, wherein each of the flakes has a particle size between about 0.5 mm and about 10 mm and a thickness between about 10  $\mu\text{m}$  and about 100  $\mu\text{m}$ .
62. (New) The process of claim 58, wherein each of the flakes has a particle size between about 1.5 mm and about 10 mm and a thickness between about 1.5  $\mu\text{m}$  and about 50  $\mu\text{m}$ .
63. (New) The process of claim 58, wherein each of the flakes has a thickness between about 1.5  $\mu\text{m}$  and about 50  $\mu\text{m}$ .

64. (New) The process of claim 58, wherein the organic polymeric material includes at least one polymer selected from a poly (meth)acrylate, a polyvinylacetate, a product of a reaction between a carboxylic acid and an epoxidation product of a carboxylic acid ester, and a mixture thereof.
65. (New) The process of claim 63, wherein the carboxylic acid is a dicarboxylic acid.
66. (New) The process of claim 64, wherein the dicarboxylic acid is selected from maleic acid, itaconic acid, fumaric acid, succinic acid, methylsuccinic acid, malic acid, furandicarboxylic acid, phthalic acid, tartaric acid, citraconic acid and mixtures thereof.
67. (New) The process of claim 63, wherein the carboxylic acid is a polycarboxylic acid.
68. (New) The process of claim 66, wherein the polycarboxylic acid is selected from citric acid, aconitic acid, trimellitic acid and mixtures thereof.
69. (New) The process of claim 58, wherein the flakes are uniformly distributed throughout the linoleum sheet.
70. (New) The process of claim 58, wherein the linoleum sheet is formed with a carrier in web form coated with a layer of the flake-linoleum composition.

71. (New) The process of claim 58, wherein the linoleum sheet is formed by means of a roller assembly.

72. (New) The process of claim 58, further including the steps of:  
cutting the linoleum sheet into chips; and,  
forming a second linoleum sheet from the chips;

73. (New) The process of claim 71, further including the step of:  
applying the second linoleum sheet onto a single layer linoleum web to form a multi-  
layered linoleum floor covering.